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**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PRD 2010-PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/02517	International filing date (day/month/year) 11.03.2003	Priority date (day/month/year) 13.03.2002
International Patent Classification (IPC) or both national classification and IPC C07D211/58, C07D211/58		
Applicant JANSSEN PHARMACEUTICA N.V.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  02.09.2003	Date of completion of this report  01.06.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  de Nooy, A  Telephone No. +31 70 340-2338  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/02517**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-76 as originally filed

**Claims, Numbers**

1-13 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP 03/02517

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-13
	No: Claims	
Inventive step (IS)	Yes: Claims	1-13
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/EP 03/02517

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following document:

D1: WO0138322

**Novelty**

The document **D1** is regarded as being the closest prior art to the subject-matter of claims 1-13, and shows the compounds of claim 1 principally containing aromatic rings connected to each other by a sulfonylamino or alkyl link. The subject-matter of claims 1-13 differs from these known compounds in that they contain a piperidinyl, homopiperidinyl, pyrrolidinyl or a piperazinyl ring in the compound. The subject-matter of claims 1-13 is therefore new (Article 33(2) PCT).

**Inventive step**

Document **D1**, which is considered to represent the most relevant state of the art, discloses the compounds of claim 1 principally containing aromatic rings connected by a sulfonylamino or alkyl link as inhibitors of histone deacetylase from which the subject-matter of claims 1-13 differs in that they contain a piperidinyl, homopiperidinyl, pyrrolidinyl or a piperazinyl ring, for the same use.

The problem to be solved by the present invention may be regarded as the provision of further compounds as inhibitors of histone deacetylase.

The solution to this problem proposed in claims 1-13 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: in D1 there is no incentive to use piperidinyl, homopiperidinyl, pyrrolidinyl or piperazyl in the compounds, this is also not obvious for the skilled man.

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07D211/58 C07D401/04 C07D207/14 C07D403/04 A61K31/4545  
A61P35/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07D A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01 38322 A (METHYLGENE INC) 31 May 2001 (2001-05-31) the whole document ---	1, 10
A	WO 98 55449 A (QUEENSLAND INST MED RES ; FAIRLIE DAVID (AU); PARSONS PETER G (AU);) 10 December 1998 (1998-12-10) the whole document ---	1, 10
A	PAN P-C ET AL: "Soluble Polymer-Supported Synthesis of Arylpiperazines" TETRAHEDRON LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 39, no. 51, 17 December 1998 (1998-12-17), pages 9505-9508, XP004144238 ISSN: 0040-4039 compound 10 -----	1.



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

7 May 2003

Date of mailing of the international search report

22/05/2003

Name and mailing address of the ISA

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Authorized officer

de Nooy, A

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/EP 03/02517

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 0138322	A	31-05-2001	AU	1876801 A		04-06-2001
			CA	2391952 A1		31-05-2001
			EP	1233958 A1		28-08-2002
			WO	0138322 A1		31-05-2001
			US	6541661 B1		01-04-2003
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WO 9855449	A	10-12-1998	AU	7751698 A		21-12-1998
			WO	9855449 A1		10-12-1998
			EP	0988280 A1		29-03-2000
			JP	2002513419 T		08-05-2002
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